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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,692	07/30/2001	Matthew Patrick Compton	450110-03374	2191

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EXAMINER

VILLECCO, JOHN M

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,692

Applicant(s)

COMPTON, MATTHEW PATRICK

Examiner

John M. Villecco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/30/01</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(o). Suitable descriptive legends are required for proper understanding of the drawings. Therefore, the blank boxes shown in Figures 6, 7, 9, and 11 should be labeled so the drawing can be properly understood.

Specification

2. The disclosure is objected to because of the following informalities:
 - On page 3, line 11 of the specification, applicant recites the word “artifacts”.
This appears to be a typographical error and that the applicant meant to use the word – artifacts –.
 - On page 10, line 27 of the specification, applicant discloses that the differing sizes of the red, green, and blue components can be found in Figures 3(a) and 3(b). However, it is clear from the drawings that this feature is found in Figures 5(a) and 5(b).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 2, 3, and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 2 recites the limitation "said shift register" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 2, which is dependent upon claim 1, discusses a shift register. However, in claim 1 there is no mention of a shift register. For examination purposes it will be assumed that the applicant is referring to the register store.

6. Claims 3, 5, and 6 also make reference to the shift register.

7. Claim 7 is rejected based upon its dependency to claim 3.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Ohki (U.S. Patent No. 5,418,907).**

10. Regarding *claim 1*, Ohki discloses an image processor that operates to generate interpolated video signals. More specifically, the image processor includes a register store (1), a control circuit (3), and an interpolation circuit (6). The register store (1) receives the pixel data and then, upon selection by the decoders, sends the pixel data to the interpolator (6). See column 7, lines 9-56. The interpolator (6) is coupled to the register store (see Fig. 7). Furthermore, the

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interpolator operates to provide the pixel data to the interpolator to interpolate features of the image having both a vertical and horizontal component. The phrase “features of said image having both a vertical and horizontal component” is extremely broad. Every pixel which is interpolated would have a vertical and horizontal component.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. **Claims 1, 4, and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Sobel et al. (U.S. Patent No. 6,707,937).**

13. Regarding *claim 1*, Sobel discloses a method of interpolating edge portions of a digital image. More specifically, Sobel discloses a register array (704), a control processor (CPU, 210), and an interpolator (710). Under control by the CPU (210) the register array receives the pixel data and then provides the pixel data to the interpolator (710). The interpolator is interpreted to be the interpolator (710) and the dot product circuits (702) or the direct linear circuits (720). Furthermore, the interpolator is coupled to the register array (704). Additionally, the system includes an edge detector (714) for detecting an edge within an image. When an edge is detected, a specific interpolation processing is carried out with respect to the pixel data. This pixel data would inherently have a horizontal and vertical component. See column 14, line 54 to column 15, line 39.

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14. With regard to *claim 4*, Sobel discloses the use of an edge detector (714) for determining if an edge is present. When an edge is present, a specific interpolation is carried out on the pixel data. The pixel data specific to the edge is provided to the interpolator.

15. As for *claim 9*, Sobel discloses an edge detector (714) for detecting an edge within an image. When an edge is detected, the pixel data surrounding the target pixel is extracted and a specialized interpolation is performed. The pixels surrounding the target pixel are stored in the register array (704). The pixel data stored in the register array are interpolated to enhance the image. See column 16, lines 42-67.

16. With regard to *claims 10 and 11*, Sobel discloses all of the limitations of claim 1. Additionally, Sobel discloses the use of a computer program, that when loaded onto the camera, carries out the interpolation processing. See column 18, lines 11-46.

17. As for *claim 12*, Sobel discloses all of the limitations of claims 1 and 10. Additionally, Sobel discloses the use of a computer program product, in the form of a computer readable medium to carry out the interpolation processing. See column 18, lines 26-63.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. **Claims 2, 3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sobel et al. (U.S. Patent No. 6,707,937) in view of Okada (U.S. Patent No. 6,133,953).**

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20. Regarding **claim 2**, as mentioned above in the discussion of claim 1, Sobel discloses all of the limitations of the parent claim. Additionally, Sobel discloses that the register array (704) includes a plurality of register elements (col. 14, line 48) that each store an individual pixel. However, Sobel fails to explicitly disclose that the register array (704) is coupled to the other register elements and data is transferred to the other register elements based on a temporal reference. Okada, on the other hand, discloses that it is well known in the art to connect a plurality of register elements together and to transfer data to an interpolation circuit through the other register elements based upon a temporal reference. More specifically, Okada discloses a 2-D register array (30) connected to an interpolation processing circuit (34). The register array (30) includes a plurality of register elements (302-230) which hold pixel data and then transfer the pixel data to the interpolation circuit (34). Based upon a clocking signal, data is transferred between the register elements (302-320). See column 7, lines 21-40. By operating the register store in this manner the pixel data is efficiently transferred to the interpolation circuit in an appropriate fashion (4x4 array). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the register array in Sobel similarly to Okada so that the data stored in the register array is efficiently transferred to the interpolation circuit.

21. Regarding **claim 3**, Okada discloses a plurality of delay stores (18, 20, 22) coupled in series and arranged to delay the input pixel data by one line. Furthermore each of the delay elements (18, 20, 22) outputs the video signal to a register element (302-320).

22. As for *claim 7*, Sobel discloses the use of a CLOCK signal for transferring the pixel data into and output of the register elements. See column 15, lines 9-27.

23. **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sobel et al. (U.S. Patent No. 6,707,937).**

24. Regarding *claim 8*, as mentioned above, Sobel discloses all of the limitations regarding claim 1. However, Sobel does not disclose that the interpolation circuit is implemented in a video camera. However, Official Notice is taken as to the fact that it is well known in the art to perform interpolation processing on image data from a video camera. Interpolation serves as an excellent way of improving the image quality. Therefore, it would have been obvious to perform the interpolation processing of Sobel in a video camera so that a higher quality image is formed.

Allowable Subject Matter

25. Claims 5 and 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

26. The following is a statement of reasons for the indication of allowable subject matter:

Regarding *claim 5*, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest that each register element is connected to at least two of the register elements of the next column, a register element one row above of the next column, and the register element one row below of the next column.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (For either formal or informal communications intended for entry. For informal or draft communications, please label **"PROPOSED"** or **"DRAFT"**)


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460.


The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John M. Villecco
December 1, 2004



AUNG MOE
PRIMARY EXAMINER